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10/620,089	07/14/2003	Philip Roland Lacourt	HP0083USNA	7408

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EXAMINER	
ZACHARIA, RAMSEY E	
ART UNIT	**PAPER NUMBER**
1773	

DATE MAILED: 10/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/620,089	LACOURT, PHILIP ROLAND	
	Examiner	Art Unit	
	Ramsey Zacharia	1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 9-26* is/are rejected.

7)☒ Claim(s) *6-8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/20/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

2. Applicant is advised that should claim 21 be found allowable, claim 22 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 10, and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. The term "PTF" renders claim 1 indefinite because the term is not defined in the claim. While a definition is recited on page 13, lines 11-13 of the specification for "PTF" (polyimide-to-

fluoropolymer), it appears to apply only when the optional fluoropolymer exterior layer is present (otherwise it might be a polyimide-to-? layer).

6. Claim 10 recites the limitation "the adhesive primer" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. Note that claim 10 depends from claim 5 while the adhesive primer is first introduced in claim 6.

7. Claim 20 recites the limitation "the adjacent adhesive primer layer" in line 2. There is insufficient antecedent basis for this limitation in the claim. Note that claim 20 depends from claim 4 while the adhesive primer is first introduced in claim 6.

Claim Language

8. For the purpose of examination, the adhesive primer recited in claims 10 and 20 is taken to be the adhesive primer as defined in claims 6-8.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-3, 11-13, 16, 17, 21, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Effenberger et al. (U.S. Patent 5,238,748).

Effenberger et al. teach a laminate comprising a layer of polyimide and one or more layers of a fluoropolymer (column 3, lines 15-22). The laminate may be used as tape-wrapped

insulation for wires (column 7, lines 39-44). In the embodiment of Example 1 the laminate comprises a polyimide layer having a thickness of 2 mil (i.e. ~ 50 μm) coated with 0.05 mil thick layers (~ 1.25 μm) of a blend comprising 50 wt% PFA having a melting point of 305 °C (column 6, lines 6-7 and 42-47). This blend layer reads on the high-temperature bonding layer of instant claim 1. A PTFE dispersion is coated on the PFA containing layer to form a PTFE layer having a thickness of 0.5 mil thick (~ 12.5 μm) (column 6, lines 47-50). This PTFE layer reads on the exterior layer of instant claim 2. The laminate is then baked and thermally treated which should result in at least a partial sintering of the PTFE dispersion particles (column 6, line 52-column 7, line 8).

Regarding claims 16 and 17, the limitation that the dielectric substrate is defined as a substrate "for an electronic circuit" is an intended use of the dielectric substrate. It has been held that a recitation with respect to the manner in which a claimed product is intended to be employed does not differentiate the claimed product from a prior art product satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 4, 5, 9, 14, 15, 18, 19, 23, 24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Effenberger et al. (U.S. Patent 5,238,748).

Effenberger et al. teach all the limitations of claims 4, 5, 9, 14, 15, 18, 19, and 23-26, as outlined above, except for specifying that the fluoropolymer layer on the opposite side of the polyimide layer from the PTFE layer comprises FEP. In the embodiment of Example 1, this layer is formed from a blend of PTFE and PFA. Effenberger et al. also do not teach the addition of one of the additives recited in instant claim 26 into the polyimide layer.

Regarding claims 4, 5, 9, 14, 15, 18, 19, 23, and 24, Effenberger et al. do teach the equivalence of thermally compatible TFE copolymers (preferably PFA and FEP) and blends of PTFE with the thermally compatible TFE copolymers (column 4, lines 42-50). That is, Effenberger et al. show that FEP and blends of PTFE and PFA are functionally equivalent materials for the practice of their invention. Therefore, because these two materials were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute FEP for one of the PTFE/PFA blend layers.

Regarding claim 26, Effenberger et al. teach the addition of carbonates that evolve carbon dioxide, minerals containing water of hydration, and polymers that decompose without producing carbonaceous or other conductive by-products to improve the arc tracking properties of the laminate (column 5, lines 9-27). While Effenberger et al. teach the incorporation of these additives into the fluoropolymer layers as opposed to the polyimide layer, Effenberger et al. also notes that it is well known in the art that polyimide films can also suffer catastrophic failure as a result of arc tracking (column 1, line 57-column 2, line 4). Therefore, it would have been obvious to one skilled in the art to incorporate additives (such as carbonates that evolve carbon dioxide, minerals containing water of hydration, and polymers that decompose without

producing carbonaceous or other conductive by-products) into the polyimide layer to improve the arc tracking properties of polyimide layer, and thus the laminate as a whole.

13. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Effenberger et al. (U.S. Patent 5,238,748) in view of Herbreteau (U.S. Patent 4,271,226).

Effenberger et al. teach all the limitations of claim 25, as outlined above, except for the degree of overlap when insulating wire by wrapping the laminate around the wire.

Herbreteau is directed to insulation for a cable formed by wrapping a tape around the cable (abstract). Herbreteau teaches that the level of insulation required is a function of the degree of overlap (column 4, lines 13-22). That is, the degree of overlap is a results effective variable that affects the level of insulation provided. It would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the degree of overlap when wrapping the tape of Effenberger et al. around a wire depending on the level of insulation required, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2nd 272, 205 USPQ 215 (CCPA 1980).

Allowable Subject Matter

14. Claims 6-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. Claims 10 and 20 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

16. The following is a statement of reasons for the indication of allowable subject matter.

The invention of claims 6-8, 10, and 20 is a dielectric substrate comprising a polyimide layer, a high-temperature bonding layer, and adhesive primer layer in contact with and positioned between the polyimide layer and the high-temperature bonding layer. The layers have thicknesses in the range of 8 to 150 μm, 0.25 to 25 μm, and 0.25 to 25 μm for the polyimide, adhesive primer, and high temperature bonding layers, respectively. The high-temperature bonding layer has a melting point of 220 to 320 °C and comprises 40 to 100 wt% of PFA. The adhesive primer layer comprises about 50 to 100 wt% of FEP.

Effenberger et al. represent the closest prior art. However, Effenberger et al. do not teach or fairly suggest a primer layer comprising at least about 50 wt% of FEP as recited in claims 6-8 between and in contact with the polyimide layer and PFA containing layer as recited in the instant claim 1.

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (571) 272-1518. The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones, can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ramsey Zacharia
Primary Examiner
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